

REMARKS

In reply to the final Office Action of May 30, 2003, applicant submits the following remarks. Claims 26-31 have been added. No new matter has been added. Claims 1-31 are now pending after entry of this amendment. The applicant respectfully requests reconsideration in view of the foregoing amendment and these remarks.

Section 103 Rejections

Claims 1, 3-5, 7, 24 and 25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,583,350 (Norman). The applicant respectfully disagrees.

Claim 1 recites a device with a plurality of substrates mounted vertically in a stacked structure. Active components are arranged on each substrate of the plurality of substrates. The active components of different substrates are arranged in a non-overlapping pattern to allow non-overlapping vertical optical paths for the light emitted from the active components of different substrates.

Norman shows a light emitting diode (LED) display 310 having an upper and a lower substrate 322, 311 each with LEDs formed thereon (FIG. 1, col. 2, lines 3-66). The LEDs are arranged such that light is transmitted through the lower substrate 311 (*id.*). A full color spectrum is obtained by forming multi-wavelength LEDs 313, 317, 323 on the upper substrate 322 (*id.*). The LEDs are staggered and the LEDs on the upper substrate 322 are larger than the spaces between the LEDs on the lower substrate 311, causing the upper LEDs 313, 317, 323 to overlap the lower LEDs 312, 316, 319 (*id.*).

The Examiner believes that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the diode placement described in Norman such that the LEDs are non-overlapping. The Examiner argues that such a modification would be motivated by the upper LEDs emitting light unimpeded and unblocked by the intervening active components. However, Norman does not actually teach that unimpeded and unblocked light paths would be desirable. The applicant points out that the mere fact that a reference can be modified does not render the modification obvious unless the prior art also suggests the

desirability of the modification (Manual of Patent Examining Procedure, § 2143.01, citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)). In addition, Norman asserts that the overlap is provided as a means for adjusting for minor misalignments between the two substrates (col. 2, lines 62-66). Purposely forming an overlap for adjustment teaches away from forming a pattern of non-overlapping components, rather than suggests the desirability of a modification as required by claim 1.

For at least these reasons, the applicant submits that a person of ordinary skill in the art would not be motivated by Norman to form a device with non-overlapping LEDs. The applicant submits that no *prima facie* case of obviousness has been made with respect to claim 1. Claims 3-5, 7 and 24 depend directly or indirectly from claim 1 and are not obvious for at least the same reason.

Claim 25 recites a device with first and second substrates where a first and second plurality of active components are arranged on the first and second substrates in a non-overlapping pattern to allow non-overlapping vertical optical paths for the light emitted from the first and second pluralities of active components. The applicant submits that claim 25 is not obvious in light of Norman for at least the same reasons as provided with respect to claim 1.

Claims 8-10 and 12-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of U.S. Patent No. 6,329,085 (Burrows). Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of U.S. Patent Application Publication No. 2002/0135296 (Aziz). Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of U.S. Patent No. 5,739,552 (Kimura). Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of Burrows and Aziz. Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of U.S. Patent No. 6,211,538 (Park). Claims 20-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Norman in view of Park and further in view of Burrows. The applicant respectfully disagrees.

Claims 2, 6 and 8-24 depend directly or indirectly from claim 1 and include the limitations of claim 1.

The cited references fail to suggest or disclose a plurality of substrates having active components where the active components of different substrates are arranged in a non-overlapping pattern to allow non-overlapping vertical optical paths for the light emitted from the active components of different substrates. For at least this reason, the applicant submits that no *prima facie* case of obviousness has been made with respect to claims 2, 6 and 8-24.

New Claims

Claims 26-31 have been added. The applicant submits that no new matter has been added with these new claims.

Claims 26 and 27 depend indirectly from claim 1 and are not unpatentable in light of the cited references for at least the reasons provided with respect to claim 1.

Claim 28 recites a plurality of substrates mounted vertically in a stacked structure. Active components are arranged on each substrate of the plurality of substrates, with the active components of each substrate emitting light of a single given color through the stacked structure towards a viewing surface. The active components of different substrates are arranged in a non-overlapping pattern to allow non-overlapping vertical optical paths for the light emitted from the active components of different substrates.

Norman shows components that are constructed to emit multiple wavelengths of light (FIGS. 1 and 2, col. 2, lines 3-66). Burrows describes red organic LEDs. The Examiner believes that Burrows solves the problem posed by Norman, *i.e.*, that organic LEDs generally produce a red that peaks at 610 nms, which motivates Norman to use a semiconductor LED in his invention. However, if the red semiconductor LEDs in Norman were replaced with a red organic LEDs, the remaining organic LEDs would still be constructed to emit both blue and green. Thus, modifying Norman would not form a device where each substrate has LEDs that emit a single given color. Rather, combining Norman with Burrows would yield a first substrate having organic LEDs that emit red light and a second substrate having organic LEDs that emit both blue and green light.

Claim 29 depends from claim 28 and requires three substrates. None of the cited references suggests or discloses three substrates with non-overlapping active components. For the above reasons, the applicant submits that claims 26 and 27 are allowable as submitted.

Claim 30 recites a plurality of transparent substrates mounted vertically in a stacked structure and active components arranged on a first surface of each substrate of the plurality of substrates, the active components of each substrate emitting light of a given color through the active component's corresponding substrate towards a viewing surface. The active components of different substrates are arranged in a non-overlapping pattern to allow non-overlapping vertical optical paths for the light emitted from the active components of the different substrates.

None of the cited references teaches or suggests a plurality of transparent substrates having active components on a first surface of each substrate and emitting through its respective substrate toward a viewing surface, where the active components of different substrates are arranged in a non-overlapping pattern. Norman teaches two substrates with active components. Norman also teaches that one of the substrates is a semiconductor, which is opaque. The active components on the semiconductor do not emit through their respective substrate toward a viewing surface.

Claim 31 depends from claim 30 and for at least the reasons provided above, the applicant submits that claims 30 and 31 are allowable.

Applicant : Guenther et al.
Serial No. : 10/051,867
Filed : January 15, 2002
Page : 11 of 11

Attorney's Docket No.: 12406-048001 / P2002,0473 US

E

Enclosed is a \$194 check for excess claim fees. Please apply any other appropriate charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: May 5, 2004


Jennifer A. Zanocco
Reg. No. 54,563

Fish & Richardson P.C.
500 Arguello Street, Suite 500
Redwood City, California 94063
Telephone: (650) 839-5070
Facsimile: (650) 839-5071

50212398.doc